

## **Biological Effects of Ionizing Radiation (BEIR) VII Health Risks from Exposure to Low Levels of Ionizing Radiation**

- BEIR VII is a National Academy of Sciences committee chartered to study the effects (risks) of low level ionizing radiation.
  - BEIR VII defines low doses of ionizing radiation as less than 100 mSv (10,000 mrem).
  - BEIR VII states that *“at doses of 100 mSv (10,000 mrem) or less, statistical limitations make it difficult to evaluate cancer risk in humans.”*
  - BEIR VII states that *“at low doses the number of radiation induced cancers is small.”*
  - BEIR VII states that *“approximately one individual in 100 persons would be expected to develop cancer (solid cancer or leukemia) from a dose of 100 mSv (10,000 mrem) while approximately 42 of the 100 individuals would be expected to develop solid cancer or leukemia from other causes.”*
  - BEIR VII establishes fatal cancer risk of ~0.0056 per 100 mSv (10,000 mrem) for solid cancers and leukemia (average of male and female risks). This is almost identical to the fatal cancer risk from ICRP 60 (1990) of 0.005 per 100 mSv derived from BEIR V.
  - U.S. average annual background radiation exposure is 3 mSv (300 mrem).
  - DOE and DHS approved annual SSFL cleanup standards are equivalent to 0.15 mSv (15 mrem).
  - Achieved cleanup at SSFL is from 0.0 to 0.01 mSv ( 0.0 to 1 mrem).
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- BEIR VII does not state that *“all radiation is dangerous”*
  - BEIR VII does not state that *“all radiation is hazardous”*
  - BEIR VII does not state that *“all radiation is unsafe”*
  - BEIR VII does not state that *“no radiation level is safe”*